

Statement of Work for GSA Schedule Notice:

Smart Growth and Climate Protection Policy Analysis

The following request for proposals describes the requirements for a TBD acquisition under the GSA *Environmental Planning Services and Documentation* contract (899-1).

Period of performance – Date Contract Initiation to May 31st 2011

Summary and Environmental Outcomes:

This project will provide support through the Smart Growth Implementation Assistance Program (SGIA) to Montgomery County, Maryland. The purpose is to help the County expand the tools currently used to measure progress toward the goals adopted in their Climate Protection Plan. In particular, this work will better position the County to make land use and transportation decisions that move them toward the adopted target of an 80 percent reduction of emissions by the year 2050. To accomplish this task the technical assistance team will help the County incorporate a GIS based sketch planning model into their current process for evaluating: transportation investments, land use decisions, and energy efficiency policies in the building sector.

The overall goal is to more comprehensively assess the implications of land use and transportation policies on the adopted climate protection plan goals. Specifically, a more detailed picture of the emissions impacts of major infrastructure investments and land use policy decisions (e.g. area and sector plans) is needed. This expanded analytical capacity will help the County identify development strategies that deliver the following environmental and community outcomes:

- increased development in transit-rich corridors, where multiple transportation options exist, thereby lowering VMT associated with the County's anticipated growth;
- more energy efficient residential and commercial buildings due to a more compact design and greater scope for investment in green technology applications that reduce energy consumption per square foot;
- prioritization of public investments to target support for development that makes the most cost effective contribution to the County's emissions reduction targets;
- increased use of less energy intensive transportation options that reduce emissions and overall household cost associated with transportation; and
- preserving carbon sequestration assets by reducing consumption of open space and agricultural land for development.

Background:

Montgomery County applied for an SGIA award in April 2009, citing the need for assistance to make progress towards the goals articulated in the Climate Protection Plan (CPP).

<http://www.montgomerycountymd.gov/content/dep/Sustainability/2009mococlimprotplan.pdf>.

This plan was developed with extensive local stakeholder involvement, and approved by the County in January 2009. The Plan estimates that current baseline emissions are from three

principal sources, in nearly equal measure: transportation (34 percent), residential building energy use (33 percent), and commercial building energy use (32 percent).

The plan offers 58 recommendations of clear actions that Montgomery County can take to achieve its target of 80 percent reduction in emissions by 2050. In particular, Montgomery County identified the need for support with two of the 58 recommendations related to land use and transportation:

- Develop and implement programs to support energy efficiency improvements by residents, managers and owners of multifamily properties, particularly affordable and low-income properties. (EEC-7 pg.58-59)
- Conduct transportation planning studies during 2009 in order to better target transportation-related GHG reduction programs. (T-4 pg. 66-67)

However, an additional item in the CPP is also relevant to the scope of the project.

- Master Plans should plan for redevelopment to create compact, livable places with a variety of housing types and mixed uses that invite people to walk or bike safely to work, to shop, and to participate in community life without a long commute by car. The Agricultural Reserve should continue to be protected for food production, recreation, and carbon sequestration. (LUP-3 pg. 94-95)

The County recognizes the need to educate elected officials, staff, residents, and developers around the role of land use and transportation decisions in supporting their climate protection goals. They also recognize the necessity of establishing rigorous, consistent, accessible and transparent modeling frameworks by which the emissions impacts of such decisions can be quantified. This SOW seeks to respond to these needs by implementing a new, unifying analytical approach that considers both residential/commercial development and transportation investments.

The County has already undertaken a number of measures which position it well for achieving its climate protection goals. Those include the creation of the Agricultural Reserve and PDR program, thereby reducing development in exurban locations far from transit, as well as the extensive public planning and investment efforts in its suburban centers (Bethesda and Silver Spring, most notably) to absorb and concentrate development near transit. New zoning code elements, such as the Transit Mixed Use Zone, will also support more sustainable development by creating a more flexible regulatory framework.

From a modeling standpoint, the County has made significant investments in developing quantitative tools to estimate greenhouse gas emissions. Those models include:

- Demographic projections
- Travel/3 model
- Local Area Model
- Greenhouse Gas modeling
- Forest/tree canopy modeling

The County has invested time and effort into each of these models, although for the most part they remain disparate and distinct from one another. They also function at varying levels of

transparency and ease of use. For example, the Travel/3 model is a traditional four-step model, adapted from the MWCOG Version 2.1D Model. Its application is generally limited to transportation planners and engineers, and is not well-understood by staff from other departments or the general public, despite the fact that transportation-related emissions represent one-third of current emissions. Conversely, the Greenhouse Gas Modeling approach, adapted from a King County application, is based on a spreadsheet for which all of the data and formulas are clear and transparent. It is easily understandable and used, and generally considered to be their “best run” at County-level emissions for the time being, but does not include some important features (e.g. emissions benefits associated with energy improvements in the existing building stock, nor the sources of energy for buildings).

The support delivered through this SOW will build upon work already done over the past few months to evaluate the Counties existing tools and propose an approach to a more integrated analysis of major transportation and land use decisions. Specifically, previous work has produced 1) an inventory of the existing models and datasets used by the County and 2) a memo evaluating the relative advantages of a few GIS based sketch planning tools given the County’s analytical needs and current assets.

This effort will take these recommendations and work to integrate the GIS based sketch planning tool selected by the County. The tool will support clear visual, mapping and scenario analysis in support of Sector Plan development - the primary mechanism used by the County to modify existing zoning for major redevelopment projects. As such, it is expected that the GIS based scenario evaluation tool will enable decision-makers to better evaluate the relative impacts of one development proposal compared to another.

The County has stated that transparency of the approach is very important, both for the benefit of policy-level decision-makers, as well as for the general public. It is believed that County elected officials are more likely to support the robust application of such a tool if it can be easily understood and explained to developers and other stakeholders. Equally important is the ability of tool users to display the impacts graphically (as in maps, tables, charts, etc.).

Tasks and Deliverables:

The purpose of this SOW has two major elements – 1) implement an analytical approach that deploys a GIS based sketch planning tool to quantify the emissions impacts of proposed land use developments and transportation investments 2) establish baseline data and scenario development protocol for the County Climate Protection Plan. For all tasks described herein, the Contractor shall at all times ensure that they are acting in a contractual capacity to the US government, and do not represent the US EPA or the federal government vis a vis policy or other recommendations on state and local land use decision making.

Task 1 –Integration of GIS based Sketch Planning Model

Through an extensive review and interview process the County has selected INDEX as their preferred GIS based tool. The contractor shall work with the county staff to integrate the model into their existing process and practices. First, the contractor shall work with the County to facilitate a two day training session in the Montgomery County Planning Department facilities for key staff that will use the model. Second the contractor shall work with the County

Department of Environmental Protection, MNCPPC Environmental and Transportation Planning Divisions and the County Research and Technology Center to gather relevant GIS based data (detailed in previous contractor memo) and ensure it is ready to be applied within the software. Third, the contractor shall work with County staff to validate the transportation and building energy emissions estimated by the model against the existing County emissions inventory. Based on this comparison, the contractor shall help evaluate the need for jurisdiction specific modifications to underlying emissions factors. Fourth, the contractor shall develop a protocol or inventory of critical data elements that will need to be periodically updated by the county to maintain the validity of the results produced by the software. Finally, the contractor should assume a 40 person hour level of effort for jurisdiction specific modifications. If any more extensive modifications are deemed necessary a workplan amendment will be initiated.

Task 1 Deliverables and Timeline:

- 1a. Two-day training session on the INDEX software delivered within four weeks of contract initiation
- 1b. Database compatible with and linked to the County licensed version of the INDEX software within three weeks of training session
- 1c. Brief memo summarizing jurisdiction validation tests, specific modifications to emission factors to account for local conditions, suggested inventory of critical data inputs that would like need to be updated, and potential future modifications within 4 weeks of completion of INDEX compatible database

Task 2 – Develop a Benchmark Evaluation Methodology

The products of this work should enable County staff and decision-makers to consider how land use planning decisions, energy efficiency policies and major transportation investments impact the County's total greenhouse gas emissions. A critical first step to any such evaluation will be the establishment of baseline scenarios for future development patterns, typical building energy consumption, embodied carbon content of electricity, and the future transportation system. The contractor shall work with County staff to identify the benchmark scenarios for each of these major issue areas.

For land use planning decisions, changes in the amount of square footage approved within a development approval process can either increase or decrease emissions for the County overall. For example, the recently approved White Flint Sector Plan has the potential to significantly lower the County's total emissions over time. While its pedestrian friendly design, improved transit service and good site design are responsible for some of the savings, a large share of the greenhouse gas reductions would likely be attributable to a greater share of the County's growth accommodated in this centrally located neighborhood with high quality transit access. However, establishing a baseline future land use scenario – specific numbers of jobs and housing units by TAZ – for the Climate Protection Plan will be a crucial first step to such an analysis. Presumably, the current TAZ level *Cooperative Regional Forecast* produced by the Metropolitan Washington Council of Governments (described in previous contractor memo) will be the starting point. On the transportation side, the contractor shall develop the assumed future transportation network based on County capital and long range planning documents and GIS shapefiles.

Finally, for green building / energy efficiency strategies a basic future baseline for the core drivers of emission reduction shall be established. Specifically, the contractor shall work with key County staff and consult key experts to benchmark the assumed energy consumption per square foot in existing and new buildings, as well as the assumed changes in the carbon per kilowatt hour content of electricity supplied in the County over the next decade.

Task Deliverables and Timeline:

2a. Memo describing the key future baselines to be used for Climate Protection Plan policy evaluations within six weeks of contract initiation (Task 2 work concurrent with Task 1)

Task 3 – Pilot Scenario Analysis Application

Once the baseline data, any modifications to the model and future benchmark scenarios are in place, the contractor shall begin work on a pilot application of the new framework. The locations will be determined by the County, however, the most likely sub-areas that could serve as a pilot application are those about to begin a Sector Plan Update process. The contractor shall work with the EPA and County staff to identify the scenario elements to be evaluated.

The contractor shall also engage key stakeholder in the development of the pilot application. Specifically, a listening session will be held with either the Sustainability Working Group (a key stakeholder group, and fundamental to the development and implementation of the CPP), or an advisory group formed around a Sector Plan Update process. The key scenarios will then be run by county staff with guidance from the consultant team. A summary report shall be prepared by the consultant team in conjunction with EPA and County staff. The report shall address issues that arose during the creation of the scenarios and highlight the key outcome indicators associated with each scenario.

The results of the analysis shall be presented to the Sustainability Working Group, or other group as EPA determines in consultation with County staff. This presentation will likely take place at an evening meeting in Montgomery County within six weeks of the presentation to EPA staff, and will require at least one telephone call with County staff to plan and prepare.

The Contractor shall be prepared to make modifications to the framework in response to that meeting, and in consultation with EPA and County staff. The end product shall be one which can be delivered to County staff to further refine and adapt for ongoing use, but shall represent the best effort by the Contractor to resolve fundamental weaknesses associated with the modeling framework (if there are indeed any). This shall occur no later than one month after the stakeholder group meeting, and shall be accompanied by any necessary written guidelines or documentation that will be essential to its on-going operation by County staff.

Task 3 Deliverables and Timeline:

3a. Meeting with stakeholders to determine the basic range of scenarios to be tested within 2 to 3 weeks of completion of Task 1

3b. Draft Powerpoint presentation, including maps and graphics summarizing outcomes within six weeks of stakeholder meeting

3c. Revised final presentation to be delivered to Sustainability Working Group within two weeks of receiving comments on draft presentation from EPA COR (project manager)

3d. Draft report describing the scenario analysis, key outcome indicators and insights learned from the pilot application of the new analytical framework within four weeks of completing deliverable 3b.

3e. Revised Final Report within 3 weeks of receipt of draft comment reports from EPA